REMARKS

Claims 1-11 are in the application. Claims 1, 3 and 4 are amended. New claim 12 is added.

Claim 1 is amended to make it commensurate with the disclosure of page 9, lines 16-18. This change obviates the rejection of claims 1 and 3-11 under 35 U.S.C. § 112. Claim 1 is also amended to incorporate the limitation of surface finish projection size disclosed on page 14, lines 5-8. Still further, claim 1 clarifies that the fluoropolymer resin layer between the high modulus layers in the laminate is a resin web that has been surfaced finished and corona treated before being heat and pressure laminated. Support for this clarification is found throughout the application and more particularly on page 15, lines 1-3, and Examples 2-5.

Claims 3 and 4 have been amended as to form for clarity without changing the substance of the claims.

Claims 9-11 are now shown, above, as separate paragraphs, to correct the obvious typographical error (i.e., failure to insert carriage return and tab before claims 10 and 11). These claims are re-presented identically in substance to the respective originals, and therefore, they are shown with the claim identifier "Original".

Support for new claim 12 is found on page 1, lines 8-11, on page 4, lines 5-10, and in the drawings.

No new subject matter has been added by the amendments.

Claims 1-11 stand rejected under U.S.C. §103(a) as being obvious over Friedman et al., US 5,908,704 ("Friedman") in view of Ishikawa et al., US 5,061,333 ("Ishikawa").

Friedman discloses a protective glazing laminate in which a fluoropolymer interlayer exposed to corona discharge treatment in an inert gas atmosphere comprising a vapor phase organic compound is laminated between two glazing

layers to provide an impact and fire resistant, transparent product having a haze value less than 4%. Ishikawa teaches a vacuum and press bonding process for making a laminate, for example, safety glass, which process incorporates a preliminary press-bonding step under vacuum and a subsequent high temperature and pressure final press-bonding step.

Friedman does not teach or suggest embossing the fluoropolymer interlayer. Ishikawa teaches that the surface of the plastic film may be embossed to ensure adequate deaeration (col. 3, lines 46-49). The Office Action maintains that it would have been obvious to modify Friedman by embossing the interlayer according to Ishikawa to obtain the claimed invention of this application. This rejection is respectfully traversed on the following grounds.

There is no motivation evident in the references for modifying Friedman as suggested by the Office Action to arrive at the claimed invention. The preliminary press-bonding step used by Ishikawa requires evacuating the atmosphere from between the sheet material and the plastic film. This takes place preferably at low temperature. Hence, Ishikawa is concerned with removing gas under vacuum to provide a product free from surface scars, irregularities or wrinkles and with minimum see-through distortion (col. 8,lines 40-44). Embossing facilitates and assures the adequate deaeration to achieve these results (col. 3, line 48).

In Friedman the bonding between layers of the composite takes place under pressure and at elevated temperature. The reference does not teach that vacuum processing is employed. The Friedman product is suitably transparent and thus does not suffer from a defect that would be rectified by adding vacuum lamination. Moreover, there is disincentive to emboss the surface of the interlayer in Friedman. Embossing adds another process step and utilizes more complex equipment. Typically, such process complications detract from overall productivity. Absent a need to be fulfilled, one of ordinary skill in the art would not make an already suitable fabrication process or an acceptable product more complicated.

In holding an invention obvious in view of combined references, there must be some suggestion, motivation, or teaching in the prior art that would have led a person of ordinary skill in the art to select the references and combine them in the way that would produce the claimed invention. There is no incentive evident from the references to incorporate embossing into Friedman.

Applicants additionally contend that the claimed invention is not the obvious result of merely adding the embossing feature of Ishikawa into Friedman. Ishikawa teaches that the depth of the "embosses" is 0.1-5 μm. This is significantly below and outside the range of embossing utilized in the present invention (about 10 to 500 μm).

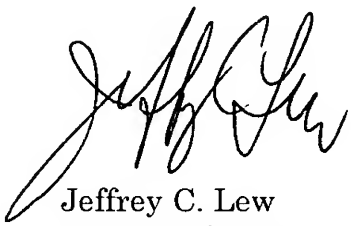
Applicants suggest that embossing to very much greater depth increases the area of the fluoropolymer resin layer surface, which in turn generates more oxygen radicals by corona treatment than would generate on a smaller surface area. See page 15, first paragraph. More radicals can lead to stronger interfacial adhesion. Thus the application implies that adhesion strength attributable to the deep projections avoids the need for an additional adhesive interlayer between the fluoropolymer resin layer and the high modulus layers. Elimination of an added tie layer is the subject of new claim 12.

Applicants' use of deep embossments is more than mere optimization of a variable disclosed in Ishikawa. Firstly, Applicants' embossment depth range is outside and far from the range taught by the reference. Thus the embossing utilized in this invention non-obviously grossly extrapolates beyond Ishikawa. Also, it is counterintuitive to make the embossing deeper than disclosed in Ishikawa. A prime objective is to provide a clear, distortion-free glazing laminate. Deep surface projections are difficult to squeeze down during heat and pressure lamination to generate an optically clear product. It would not have been obvious to

use a more deeply textured surface finish to form a smooth, distortion-free, optically transparent glazing laminate.

For the foregoing reasons, Applicants respectfully request that claims 1-11 as amended and new claim 12 be allowed at this time.

Respectfully submitted,



Date: November 26, 2003
2205 Silverside Road
Wilmington DE 19810
Facsimile:(302) 475-7915

Jeffrey C. Lew
Attorney for Applicant
Registration No. 35,935
Telephone:(302) 475-7919